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EXAMINER

CHO, UN C

ART UNIT PAPER NUMBER

2687

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,415

Applicant(s)

SHEPHERD ET AL.

Examiner

Un C Cho

Art Unit

2687

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 is/are allowed.
- 6) ☒ Claim(s) 13-30 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 13 is objected to because of the following informalities:

Regarding claim 13, lines 4 and 6 of the claim recite, "... the local base station ..." at the preamble of the claim it recites "...at a home base station ...". Since the claim refers to a local base station it is suggested to change at the preamble to "... a local base station ..." instead.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 13 – 18, 23, 24, 26 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krayeski et al. (US 5,471,146) in view of Hokkanen et al. (US 5,752,165).

Regarding claim 13, Krayeski discloses a method of diagnosing the operation of a first transceiver at a local base station used to perform signal strength measurements of signals transmitted to a remote base station (Krayeski, Col. 3, lines, 3 – 59).

However, Krayeski does not specifically disclose said verifying method comprising receiving an access request on a control channel associated with a local base station with the first transceiver; receiving an access request on the control channel associated with the local base station with a second transceiver; verifying that the first transceiver is functional by comparing the access request received by the first transceiver with the access request received by the second transceiver. In an analogous art, Hokkanen discloses verifying defective receiver comprises receiving a radio signal associated with a local base station with the first receiver; receiving a radio signal with a second receiver, verifying that the first receiver is functional by comparing the radio signal received by the first transceiver with the radio signal received by the second receiver (Hokkanen, Col. 2, line 50 through Col. 3, line 13). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the technique of Hokkanen to the system of Krayeski in order to provide a method by which a malfunction in a receiver unit of a base station is detected more easily, rapidly and reliably than before by indicating an error when the difference between the averages calculated for the different receivers is greater than a predetermined reference value.

Regarding claim 14, Krayeski in view of Hokkanen as applied to claim 13 above discloses comparing the signal received by the first transceiver with the signal received by the second transceiver comprises measuring the signal strength of the radio signal received by the first transceiver; measuring the signal

strength of the radio signal received by the second transceiver and comparing the signal strength measurements of the radio signals received by the first and second transceivers (a comparator compares the average calculated value for each received signals and if the received signals are different than the predetermined limit value then generates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 15, Krayeski in view of Hokkanen as applied to claim 13 above discloses generating an alarm if the signal strength measurements of the radio signals received by the first and second transceivers do not match within predetermined limits (a comparator compares the average calculated value for each received signals and if the received signals are different than the predetermined limit value then generates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 16, the claim is interpreted and rejected for the same reason as set forth in claim 13.

Regarding claim 17, Krayeski in view of Hokkanen as applied to claim 16 above discloses tuning the first transceiver to a channel associated with a remote base station and receiving signals on the channel associated with the remote base station with the first transceiver (second transceiver, Fig. 1, 50 tunes to the channel of the first transceiver, Fig. 1, 10 and receives signals on the channel associated with the transmission of the first transceiver, Krayeski, Col. 3, lines, 3 – 59).

Regarding claim 18, Krayeski in view of Hokkanen as applied to claim 17 above discloses measuring signals strengths of signals received on the channel associated with remote base station (measure signal strength of received signals, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 23, Krayeski in view of Hokkanen as applied to claim 17 above discloses generating an alarm if the signal strength measurements of the signals received by the first transceiver do not match the signal strength measurements of corresponding signals received by a second transceiver (a comparator compares the average calculated value for each received signals and if the received signals are different than the predetermined limit value then generates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 24, Krayeski in view of Hokkanen discloses a method of verifying the operation of a first transceiver at a local base station used to perform signal strength measurements of signals transmitted to a remote base station said method comprising listening for access requests on a control channel associated with the local base station with the first transceiver (the second transceiver tuning to the same channel or frequency on which the first transceiver is transmitting, Krayeski, Col. 3, lines, 3 – 59); generating a first alarm if a second transceiver listening on the control channel receives an access request that was not received by first transceiver (the comparator is always calculating the average of the signal levels received by each receivers and if it is determined that either one of the received signals falls below a predetermined limit value for

whatever reason, such as, one of the receiver stops receiving signals, the comparator indicates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 26, Krayeski in view of Hokkanen as applied to claim 24 above discloses sending a notification if no access request is received during the predetermined time period by either the first or second transceivers (the comparator is always calculating the average of the signal levels received by each receivers and if it is determined that either one of the received signals falls below a predetermined limit value for whatever reason, such as, one of the receiver stops receiving signals, the comparator indicates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 27, Krayeski in view of Hokkanen discloses a base station for a communication network comprising a first transceiver adapted to listen to access requests on a control channel in a remote cell; a second transceiver adapted to transmit and receive signals on a local control channel associated with said base station (the second transceiver tuning to the same channel or frequency on which the first transceiver is transmitting a first transceiver adapted to transmit and receive signals, Krayeski, Col. 3, lines, 3 – 59) and a controller to control the operation of the first and second transceivers and to verify the operation of the first transceiver by comparing signal strength measurements of a signal received by said first and second transceivers on the local control channel (the comparator is always calculating the average of the signal levels received by each receivers and if it is determined that either one of

the received signals falls below a predetermined limit value for whatever reason, such as, one of the receiver stops receiving signals, the comparator indicates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 28, Krayeski in view of Hokkanen as applied to claim 27 above discloses that the first transceiver is adapted to measure the signal strength of the access requests transmitted on the control channel in the remote cell (second transceiver tunes to the same channel or frequency on which the first transceiver is transmitting and measures the signal strength of the first transceiver, Krayeski, Col. 3, lines, 3 – 59).

Regarding claim 29, Krayeski in view of Hokkanen as applied to claim 27 above discloses that the controller is operative to generate an alarm if the signal strength measurements of the signals received by the first and second transceivers do not match within predetermined limits (a comparator compares the average calculated value for each received signals and if the received signals are different than the predetermined limit value then generates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

Regarding claim 30, Krayeski in view of Hokkanen as applied to claim 27 above discloses that the controller generates an alarm if the second transceiver receives a signal that is not received by the first transceiver (the comparator is always calculating the average of the signal levels received by each receivers and if it is determined that either one of the received signals falls below a predetermined limit value for whatever reason, such as, one of the receiver stops

receiving signals, the comparator indicates an alarm, Hokkanen, Col. 2, line 50 through Col. 3, line 13).

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krayeski in view of Hokkanen as applied to claim 18 above, and further in view of Bruin et al. (US 2003/0060209).

Regarding claim 19, Krayeski in view of Hokkanen as applied to claim 18 above discloses measurements of signal strength of received radio signal.

However, Krayeski in view of Hokkanen does not specifically disclose determining a carrier to interference ratio based on the signal strength measurements of the signal received on the channel associated with the remote base station. In an analogous art, Bruin discloses determining carrier to interference based on the signal strength measurements (Bruin, Paragraph 0031, lines 4 – 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the technique of Bruin to the modified system of Krayeski and Hokkanen in order to provide a high capacity radio communication network which employs a reuse technique so that the assignment of channels in each cell renders the network interference limited.

5. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krayeski in view of Hokkanen as applied to claim 17 above, and further in view of Uhlik et al. (US 2003/0026220).

Regarding claim 20, Krayeski in view of Hokkanen as applied to claim 17 above discloses receiving radio signals associated with a base station.

However, Krayeski in view of Hokkanen does not specifically disclose receiving access requests received on an access channel. In an analogous art, Uhlik discloses a base station receiving access request on an access channel (Uhlik, Paragraph 0080, lines 1 – 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the technique of Uhlik to the modified system of Krayeski and Hokkanen in order to provide a system and methods to facilitate the delivery of enhanced data services in a mobile wireless communications environment.

Regarding claim 21, the claim is interpreted and rejected for the same reason as set forth in claim 20.

6. Claims 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krayeski in view of Hokkanen as applied to claim 17 above, and further in view of Yoshimi et al. (US 5,603,093).

Regarding claim 22, Krayeski in view of Hokkanen as applied to claim 17 above discloses receiving radio signals.

However, Krayeski in view of Hokkanen does not specifically disclose receiving signals for a predetermined period of time. In an analogous art, Yoshimi discloses that the base station acquires data on the field intensity and the signal quality for a desired period of time (Yoshimi, Col. 3, lines 54 – 58). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the technique of Yoshimi to the modified system of Krayeski and Hokkanen in order to provide a method that permits easy, accurate monitoring of the state of co-channel interference even if the mobile radio communication system is in service.

Regarding claim 25, the claim is interpreted and rejected for the same reason as set forth in claim 22.

Allowable Subject Matter

1. Claims 1 – 12 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, Krayeski in view of Hokkanen discloses verifying the operation of a first receiver used to perform signal strength measurements; receiving a transmission with the first receiver, measuring signal strength by the first receiver determining whether the first receiver is functional by comparing the signal strength measurements of the transmission received by the first receiver to the transmission received by the second receiver at the first base station.

However, Krayeski, Hokkanen, Bruin, Uhlik and Yoshimi either alone or combination fails to disclose that after verifying that the first transceiver is operational, receiving signals on a second channel associated with a second base station in the remote cell with the first transceiver, measuring the signal strength of the signals received by the first transceiver on the second channel

and determining the interference based on the signal strength of the signals received on the second channel.

Regarding claim 6 and 10, the claims are interpreted and allowed for the same reason as set forth in claim 1.

Response to Arguments

7. Applicant's arguments with respect to claims 13 – 30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takashima (US 5,970,396) discloses a diversity receiver having a pair of receiving circuits, which is capable of disconnecting a faulty receiving circuit from its operation.

Heinz et al. (US 6,697,616) discloses a method and base station for functional testing of a transmission and reception path.

Schumutz et al. (US 2002/0028675) discloses a method and apparatus for backhaul link diagnostic in a wireless repeater system.

Eriksson (US 6,151,482) discloses operation and maintenance link for antenna equipment.

Art Unit: 2687

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Un C Cho whose telephone number is (703) 305-8725. The examiner can normally be reached on M ~ F 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (703) 306-3016. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


2/12/05
ELISEO RAMOS-FELICIANO
PATENT EXAMINER

Un C Cho
Examiner
Art Unit 2687

2/16/05 UC